STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

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December 9, 2002

Mr. Orlando Monaco
Department of Navy
Engineering Field Activity-Northeast
Code 1823/OM
10 Industrial Highway, Mailstop 82
Lester, PA 19113-2090

Re: Site 9, Monitoring Event 20
Naval Air Station, Brunswick, Maine

Dear Mr. Monaco:

The Maine Department of Environmental Protection (MEDEP) has reviewed the draft report entitled Monitoring Event 20-April 2002 for Site 9: Neptune Drive Disposal Site, dated November 2002, prepared by EA Engineering, Science and Technology. Based on that review the Department has the following comments and issues.

General Comments:

1. As discussed at the October 22, 2002 Technical Meeting, MEDEP understands that the Navy intends to produce a workplan to investigate subsurface conditions/groundwater quality in the western part of Site 9, addressing long-standing concerns regarding the source of vinyl chloride. Such data collection should be very informative and close crucial voids in understanding Site 9 groundwater contamination. MEDEP looks forward to assisting the Navy in designing the work plan. (NR)

Specific Comments:

2. Section 1.3.1, Sampling Activities, p. 2, 2nd para:

   Please reread this paragraph. There are is a conflict in the number of monitoring wells in the pilot study for aqueous diffusion samplers. (ED)

3. Section 1.3.1, Sampling Activities, p. 3, 1st para:

   "...it generally appears that there were slightly higher pH and dissolved oxygen results and slightly lower temperature results with the diffusion sampler data as opposed to the low-flow data."

   This reported relationship for dissolved oxygen is unexpected, because the low-flow sampling would be expected to increase dissolved oxygen over ambient levels due to the pumping to water to the surface. The difference in dissolved oxygen values between techniques is substantial in

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nearly every Site 9 well. The lower value is usually considered more reliable, as oxygen addition can occur in several ways. Perhaps oxygen is diffusing through the bags while being held for laboratory analysis. Does the Navy have a different explanation? The Navy needs to determine why this difference in collection methodologies is occurring and the effect on the monitoring results. It may be necessary to amend collection and/or handling procedures. (RR)

4. Section 2.2.2.1 Volatiles, p. 8, 5th para:

"Monitoring wells in the long-term monitoring network appear to be well positioned to access changes in vinyl chloride concentrations north of the impoundment ponds."

While this statement could be generally true, several important locations/depths in the downgradient migration pathway are not being monitored. MEDEP has presented evidence to the Navy that the core of the vinyl chloride plume may be escaping into the lower pond undetected, due to a subtle change in groundwater flow caused by creation of the impoundment ponds. The Navy indicated that additional direct push sampling, and possibly a new monitoring well or two, will be proposed within several months (Technical Meeting of October 22, 2002). Given the recognition of a potential for inadequate monitoring coverage, the report statement should be reworded or deleted. (ED)

5. Section 2.2.2.1 Volatiles, p. 8, 6th para:

"The current use of three diffusion samplers per well can be reduced to one sampler per well without reducing the representativeness of the ground-water sampling program."

Before the State is willing to agree to this statement the entire diffusion sample database for Site 9 must be carefully analyzed and presented in text, table and graphic formats for scrutiny by the agencies and the citizen's technical representative.

Also for the key monitoring well, MW-NASB-069, the vinyl chloride values for the top, middle and bottom diffusion samplers have shown no consistency between events. Extreme chemical stratification must be addressed. The highest concentration zone should be monitored each time, and therefore, it appears that three samplers may be needed at this location. Thus, the above statement by the Navy is premature, and should be removed. (ED)

6. Section 2.2.2.1 Volatiles, p. 9, bullet one, MW-NASB-069:

a.) "Volatile concentrations for vinyl chloride, 1,1-dichloroethane (DCA), ethylbenzene, toluene, and total zylenes remained the same since the last monitoring event (1,1-DCA, ethylbenzene, toluene, and total xylenes were not detected)."

This sentence is worded rather awkwardly. The concentrations of four contaminants are said to have remained the same, but have been non-detects. MEDEP suggests the following language: "Volatile concentrations for vinyl chloride, 1,1-dichloroethane (DCA), ethylbenzene, toluene, and total zylenes have remained non detect since the last monitoring event. ~~(1,1-DCA, ethylbenzene, toluene, and total xylenes were not detected)~~. " (ED)

b.) "Overall, since 1998, the concentration of vinyl chloride has decreased to not detected at this monitoring well location."

This statement is incorrect for MW-NASB-069, and must have been intended for another well. Please remove the above sentence. (ED)

7. Section 2.2.2.1 Volatiles, p. 10, MW-NASB-227:

The most important contaminants found at this location, PCE and TCE, are not mentioned, nor are they plotted in the Appendix B trend graphs. Because MW-NASB-227 is close upgradient of some Site 9 wells where trace to low-levels PCE or TCE has been often detected, these contaminants must be addressed in monitoring event reports due to their significance as potential parent compounds of vinyl chloride. Please correct. (ED)

8. Section 3, Recommendations. Bullets 1 and 2:

Bullet 1: "Continue long-term monitoring and sampling during September 2002 as per the latest version of the Long-Term Monitoring Plan to assess the effectiveness of natural attenuation with long-term monitoring, the selected remedy for the site."

Bullet 2: "Continue the use of aqueous diffusion samplers at Site 9 to assess the usefulness of these samplers at one sample interval within the screened interval (shallow, mid-, or deep). Following the completion of the September 2002 sampling event, the diffusion data should be reviewed to finalize sampling intervals for the diffusion samplers and eliminate low-flow sampling from these wells."

No unilateral change can be made to the existing Long Term Monitoring Plan. The Record of Decision for Site 9 states: "Long-term monitoring will be conducted in accordance with the Long-Term Monitoring Plan to monitor groundwater, surface water, leachate, and stream sediments for COC. The Long-Term Monitoring Plan, which was required by the Interim ROD, is currently undergoing revisions and is scheduled to be finalized in 1999. The revised Long-Term Monitoring Plan will be reviewed and approved by EPA and MEDEP in consultation with the Restoration Advisory Board and the public. The Navy will continue the monitoring program in accordance with the Long-Term Monitoring Plan until it is determined that the program is no longer necessary. This determination shall be made with the approval of EPA and MEDEP in consultation with the Restoration Advisory Board and the public..." Therefore Navy must develop and submit for review and approval a revised Long Term Monitoring Plan with documentation which includes the entire diffusion sample database in text, table and graphic formats for analysis of sampling intervals. Once that plan has been agreed upon by EPA, MEDEP and the BASCE representative it can be implemented. Until that time the current LTMP must continue per the Record of Decision for Site 9. (ED/RR)

9. Figure 4, Vinyl Chloride/Total 1,2-Dichloroethene Ratio Trends:

This graph would be much more informative if the actual ratio values for each event were shown as color dots for the period of record (1995 – 2002). For wells MW-NASB-072 and MW-NASB-076, non-detects were reported for the last monitoring event (ME-20), however, the least mean square regression lines do not intersect the x-axis as does the line for MW-NASB-075. Without the data ratios shown, it is difficult to assign significance to any of the trend lines. Please add the individual ratio points to all future ratio trend graphs. (ED)

10. Figure 5, Sum of Vinyl Chloride and 1,2-Dichloroethene Graphs:

Both graphs show a low in total concentrations for the period of 1996 through 1998 in contrast to 1995 and 1999 through 2001. While various hypothesis could be advanced, the cause of the above contrasts has not been established. When the Site 9 groundwater

regime is adequately understood relative to environmental events in this area of the base, the explanation should be evident.

To assist in developing hypotheses, MEDEP plotted Site 9 groundwater elevations since March 1998 to learn if the drought may have had a significant effect. A larger difference between spring and fall levels did occur in 2001, and the highest water elevations for this period occurred in April 2001 in the central and northern part of Site 9. Figure 5 shows that the highest total 1,2-dichloroethene concentrations also occurred in April 2001. The drop in 1,2-dichloroethene concentration in April 2002 emphasizes that both contaminants do not follow a regular seasonal pattern. (NR)

11. Appendix A, Laboratory Analytical Data Summary Tables:

For all monitoring wells for which 1,2-dichloroethene was measured, the total VOC values are reported too high by the specific well value of 1,2-dichloroethene, total. The cause of the erroneous values is that cis-1,2-dichloroethene and trans-1,2-dichloroethene were added to the total VOCs as well as total 1,2-dichloroethene. Please correct the table and correct any graphs that are affected. (ED)

Thank you for the opportunity to review this report. If you have any questions or comments please call me at (207) 287-7713.

Respectfully,

Claudia Sait

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